UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
OSB1997-0745

June 10, 1997

Fred P. Patron
Federal Highway Administration
The Oregon Division
The Equitable Center, Suite 100
530 Center Street NE
Salem, Oregon 97301

RE: Conference Opinion for Ongoing and Proposed Actions in North Coast Drainage Basins for 1997

Dear Mr. Patron:

Attached is the National Marine Fisheries Service's (NMFS) Endangered Species Act (ESA) section 7 conference opinion (Opinion) for ongoing and proposed actions in North Coast Drainage Basins for 1997. The Federal Highway Administration and the Oregon Department of Transportation has determined that Barview - Miami River Bridge is “not likely to adversely affect,” and Pacific Way - Dooley Bridge, Cow Creek Bridge, Wilson River Bridge - Dougherty Slough Bridge, and Beaver Creek Bridge are "likely to adversely affect," and determined by the NMFS as not likely to jeopardize the continued existence of Oregon Coast coho salmon (*Oncorhynchus kisutch*) and Oregon Coast steelhead (*O. mykiss*). The effect determination was made by evaluating the environmental baseline (current aquatic habitat conditions) and predicting effects of actions on that baseline (see enclosed Opinion).

Although the NMFS expects some adverse effects to the environmental baseline from the action, the effects are expected to be minor because of project design and project timing.

Should Oregon Coast coho salmon or Oregon Coast steelhead become listed under the ESA, or should critical habitat be designated, the NMFS expects the attached conference opinion to serve as the basis for a biological opinion on implementation of the ongoing and proposed actions,

pursuant to 50 CFR § 402.10(d). Since the ESA does not have a prohibition against take of proposed or candidate species, an Incidental Take Statement is not issued with the attached conference opinion.

If you have any specific questions please contact Garwin Yip at (503) 230-5419 or Steve Morris at (503) 231-2224.

Sincerely,

William Stelle, Jr.
Regional Administrator

Enclosures

cc: Elton Chang - FHWA
Rose Owens - ODOT
Margie Willis - ODOT
Pieter Dykman - ODOT
Alan Lively - ODOT
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Endangered Species Act - Section 7 Conference

CONFERENCE OPINION

Ongoing and Proposed Actions in North Coast Drainage Basins for 1997

Agency: Oregon Department of Transportation

Conference Conducted By: National Marine Fisheries Service
Northwest Region

Date Issued: June 10, 1997

Refer to: OSB1997-0745

TABLE OF CONTENTS

I. Introduction and Background

The objective of this conference is to determine whether the ongoing and proposed actions in North Coast Basins for 1997 are likely to jeopardize the continued existence of Oregon Coast (OC) coho salmon or Oregon Coast (OC) steelhead or result in the destruction or adverse modification of critical habitat. The OC coho salmon (*Oncorhynchus kisutch*) Evolutionarily Significant Unit (ESU)[1] was proposed as threatened under the Endangered Species Act (ESA) (July 25, 1995, 60 FR 38011). The National Marine Fisheries Service (NMFS) determined that the OC coho salmon ESU does not warrant listing at this time. Accordingly, the NMFS will consider the OC coho salmon ESU to be a candidate species and will review its listing status in three years (or earlier if warranted by new information). The OC steelhead (*Oncorhynchus mykiss*) ESU[1] was proposed as threatened under the ESA (August 9, 1996, 61 FR 41541). Descriptions of the ongoing and proposed actions are provided in Section II of this document. Barview - Miami River Bridge has been determined as “not likely to adversely affect,” and Pacific Way - Dooley Bridge, Cow Creek Bridge, Wilson River Bridge - Dougherty Slough Bridge, and Beaver Creek Bridge have been determined as "likely to adversely affect" OC coho salmon and OC steelhead. Although the NMFS expects these actions to adversely affect the environmental baseline, project design, timing, and mitigation reduce these effects substantially enough to avoid jeopardizing the continued existence of OC coho salmon and OC steelhead. Because critical habitat has not been proposed or designated, this conference does not address destruction or adverse modification of critical habitat. Should OC coho salmon or OC steelhead be listed under the ESA, or should critical habitat be designated, the NMFS expects this Conference Opinion (Opinion) to serve as the basis for a biological opinion on implementation of these proposed and ongoing actions, pursuant to 50 CFR § 402.10(d).

The NMFS received copies of the Biological Assessment (BA) from the Oregon Department of Transportation (ODOT) on April

1. For purposes of conservation under the Endangered Species Act, an Evolutionarily Significant Unit is a distinct population segment that is substantially reproductively isolated from other conspecific population units and represents an important component in the evolutionary legacy of the species (Waples 1991).

4, 1997, and Federal Highway Administration (FHWA) on April 14, 1997. Garwin Yip, NMFS, requested additional information from Margie Willis, ODOT, via electronic mail on April 9 and 14, 1997. Margie Willis, ODOT, provided project maps to Garwin Yip, NMFS, via FAX on April 14 and 16, 1997. Garwin Yip, NMFS, received further information via personal communications with Margie Willis, ODOT, on April 16 and 17, 1997. Addenda to the BA were received on April 27 and May 2, 1997. Formal conferencing on the ongoing and proposed actions will be concluded with issuance of this Opinion.

The NMFS, in collaboration with other Federal agencies[2], has prepared guidance for determining the effects of human activities on anadromous fish species of concern (NMFS 1996). This guidance is based on a "Matrix of Pathways and Indicators" (Matrix), which is a simple yet holistic method of characterizing environmental baseline conditions and predicting the effects of human activities on those baseline conditions. The Matrix provides generalized ranges of functional values (i.e., properly functioning, at risk, and not properly functioning) for aquatic, riparian, and watershed parameters.

The NMFS acknowledges that the generalized values provided in the Matrix may not be appropriate for all watersheds within the range of anadromous salmonids. Development of more biologically appropriate matrices in specific physiographic areas is encouraged. The NMFS, in conjunction with the Oregon Department of Fish and Wildlife (ODFW) and Federal land management agencies, is in the process of appropriately modifying the Matrix for the Oregon Coast Range Province (this includes the proposed project area). For the purpose of this conference, the existing Oregon Coast Range Province interim Matrix (dated June 14, 1996) was used to analyze the proposed action. This interim Matrix is included in Attachment 1. Attachment 1 (NMFS 1997a) describes the biological requirements and status of OC coho salmon and OC steelhead under the 1996 environmental baseline.

2. The other collaborating Federal agencies are the U. S. Forest Service, the Bureau of Land Management, and the U. S. Fish and Wildlife Service.

II. Ongoing and Proposed Actions

The ODOT, in receipt of funding from the FHWA, proposes to implement the following proposed and ongoing actions in 1997.

1. Pacific Way - Dooley Bridge (Key #00713 and #09245): This project is proposed to be implemented in order to meet travel demands for 20 years into the future. The ODOT proposes to replace the existing two-lane section of US 101 between Pacific Way in Gearhart and Dooley Bridge in Seaside (approximately four miles) with four lanes, and will include bicycle lanes and sidewalks. US 101 runs along the Oregon coast, and the section proposed for expansion is in Clatsop County between the towns of Gearhart and Seaside. This section of highway generally parallels Neawanna Creek to the east and Necanicum River to the west. Both flow into the Pacific Ocean, and lie within the Oregon Coast Range Province.

2. MP 27 Slide Stabilization (Key #08914): This project has been completed and was withdrawn from conferencing (ODOT 1997b).

3. Cow Creek Bridge (Key #01006): The ODOT proposes to replace the existing deteriorating and substandard Cow Creek bridge, located near Vinemaple, on Fishhawk Falls Highway. Fishhawk Falls Highway is the main route from Elsie to Jewell in Clatsop County. Cow Creek is a tributary of the Nehalem River. The Nehalem River, which flows into the Pacific Ocean, lies within the Oregon Coast Range Province.

4. MP 26 - Wolf Creek Bridge (Key #01006): This project has been completed and was withdrawn from conferencing (ODOT 1997b).

5. Wilson River Bridge - Dougherty Slough Bridge (Key #03482): The ODOT proposes to widen the existing two-lane section of US 101 between Wilson River Bridge and Dougherty Slough Bridge (approximately one mile) from two lanes to five lanes with sidewalks where they are lacking. The bridges at Hall and Dougherty sloughs would be replaced with wider structures. US 101 runs along the Oregon coast, and the section proposed for expansion is in Clatsop County in the northern part of the City of Tillamook. This section of highway crosses the Wilson

River, Hall Slough, and Dougherty Slough, all of which flow into Tillamook Bay and lie within the Oregon Coast Range Province.

6. Barview - Miami River Bridge (Key #07104): This project is ongoing, with completion in 1997. The project would pave approximately 2.7 miles of US 101 from Barview, through the town of Garibaldi to the Miami River Bridge. Also, a short section of US101 near the town of Wheeler would be paved. This section of US 101 proposed for paving is in Tillamook County, and runs in the east-west direction around the north side of Tillamook Bay. This section of highway crosses a number of small streams that drain into Tillamook Bay. The ongoing action area lies within the Oregon Coast Range Province.

7. Beaver Creek Bridge (Key #02879): The ODOT proposes to widen an existing bridge that crosses Beaver Creek at milepoint 79.6 on US 101, north of the town of Beaver, in Tillamook County. Beaver Creek is a tributary of the Nestucca River. The Nestucca River, which flows into the Pacific Ocean, lies within the Oregon Coast Range Province.

8. MP 94 Slide (Key #08924): The effects determination for this project was changed from “not likely to adversely affect” to “no effect,” and has been withdrawn from conferencing (ODOT 1997b).

The above ongoing and proposed projects consist of widening existing roads, and widening or replacing existing bridges. In once instance, for the Pacific Way - Dooley Bridge project, an additional bridge is proposed to gain better access to Lewis and Clark Road. The highway is proposed for widening to accommodate projected traffic demands in the near future. The bridges are proposed to be widened or replaced to bring them up to current standards and accommodate the wider highway.

The ODOT has incorporated several project design features in the ongoing and proposed actions that substantially reduce adverse effects to anadromous fish. These features include:

- planting native vegetation in disturbed areas at a 1.5:1 replacement-to-removal ratio;

- planting willow and red-osier dogwood sprigs in all of the riprap;

- seeding and mulching all disturbed areas;

- monitoring all plantings until they re-establish;

- replacing bridges with bridges rather than culverts;

- setting new bridge footings out of stream channels;

- limiting in-water work to the ODFW's preferred in-water work window (ODFW 1997) and the dry season;

Additional project-specific design features include:

Pacific Way - Dooley Bridge:
- an approved spill prevention and counter measure control plan and ready access to environmental spill cleanup equipment;

- installing a wall south of Avenue U Bridge to prevent fill from entering the Necanicum River;

- removing old asphalt laying in the creek bed upon replacement of Dooley Bridge;

- installing removable tidegates at the Mill Creek crossing to improve migratory fish passage and restore estuarine habitat;

Cow Creek Bridge:
- removing and ripping old road to and from Cow Creek Bridge and replanting;

- creating pools for salmon upstream from the new Cow Creek Bridge, according to instructions specified by an ODFW fishery biologist;

Wilson River Bridge - Dougherty Slough Bridge:
- an approved spill prevention and counter measure control plan and ready access to environmental spill cleanup equipment;

- reducing the potential of sedimentation by installing sediment traps, silt fences, straw bales, and/or aggregate check dams on slopes draining to the waterway and highway drainage inlets;

Barview - Miami River Bridge:
- development of a pollution control plan adequate to ensure protection of all aquatic resources in the project vicinity;

Beaver Creek Bridge:
- creating a berm around the fuel storage tank and all petroleum products and locating them away from the project area.

Full project details are available in the BA (ODOT 1997a).

III. Biological Information and Critical Habitat

The listing status and biological information for both OC coho salmon and OC steelhead are described in Attachment 1. While critical habitat has not been proposed or designated, Attachment 1 describes potential critical habitat elements for OC coho salmon and OC steelhead.

IV. Evaluating the Proposed Action

The standards for determining jeopardy are set forth in Section 7(a)(2) of the ESA, and defined in the implementing regulations (50 CFR § 402). Attachment 2 (NMFS 1997b) describes how the NMFS applies the ESA jeopardy standards to OC coho salmon and OC steelhead. At this time, the NMFS is unable to determine whether actions included in this conference are likely to destroy or adversely modify designated critical habitat. This determination can be made at a later date when critical habitat is proposed or designated.

As described in Attachment 2, the first steps in applying the ESA jeopardy standards are to define the species' biological requirements and to describe the species' current status as reflected by the environmental baseline. In the next steps, the NMFS' jeopardy analysis considers how proposed actions are expected to directly and indirectly affect specific

environmental factors that define properly functioning aquatic habitat essential for the survival and recovery of the species. This analysis is set within the dual context of the species' biological requirements and the existing conditions under the environmental baseline (defined in Attachment 1). The analysis takes into consideration the overall balance of beneficial and detrimental activities taking place within the action area. If the cumulative actions are found to jeopardize the listed species then the NMFS must identify any reasonable and prudent alternatives to the proposed action.

A. Biological Requirements. For this conference, the NMFS finds that the biological requirements of OC coho salmon and OC steelhead are best expressed in terms of environmental factors that define properly functioning freshwater aquatic habitat necessary for survival and recovery of the species. Individual environmental factors include water quality, habitat access, physical habitat elements, channel condition, and hydrology. Properly functioning watersheds, in which all of the individual factors operate together to provide healthy aquatic ecosystems, are also necessary for the survival and recovery of OC coho salmon and OC steelhead. This information is summarized in Attachment 1.

B. Environmental Baseline.

1. Current range-wide status of the species under the environmental baseline. The OC coho salmon ESU, although not in immediate danger of extinction, may become endangered in the future if present trends continue (Weitkamp *et al*. 1995). The OC steelhead ESU, although not presently in danger of extinction, is likely to become endangered in the foreseeable future (Busby *et al*. 1996). In the absence of adequate population data, habitat condition provides a means of evaluating the status of these species for the environmental baseline assessment.

2. Action Area. The “action area” is defined as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50 CFR § 402.02). Thus,

the "action area" for this conference includes areas downstream of the project area as well as the immediate project area itself.

3. **Current status of the species under the environmental baseline within the action area.** Environmental baseline conditions within the action area were evaluated based on the Oregon Coast Province Interim Matrix (see Attachment 1). This method assesses the current condition of instream, riparian, and watershed factors that collectively provide properly functioning aquatic habitat essential for the survival and recovery of the species.

   The environmental baselines in the Necanicum River Basin, Cow Creek watershed, and Nestucca River Basin were divided between all three functional levels. The Wilson River Basin is “at risk” or “not properly functioning” for all but one of the 17 environmental conditions considered (ODOT 1997a).

Based on the best information available on the current status of the species (Attachment 1) and the NMFS' assumptions given the information available regarding (1) population status, population trends, and genetics (page 3 of Attachment 2) and (2) the environmental baseline conditions within the action areas, the NMFS concludes that the biological requirements of OC coho salmon and OC steelhead are currently not being met under the environmental baseline within the action areas. Significant improvement in habitat conditions is needed to meet the biological requirements for survival and recovery of these species. Actions that do not maintain or restore properly functioning aquatic habitat conditions would be likely to jeopardize the continued existence of OC coho salmon and OC steelhead due to the high level of risk the species presently face under the degraded environmental baseline.

V. Analysis of Effects

A. **Effects of Proposed Actions.** The effects determinations for the ongoing and proposed projects were made using NMFS (1996) to evaluate the environmental baseline (current aquatic conditions) and to predict any effects

of the action on that baseline. The effects of the actions are expressed in terms of the expected effect (restore, maintain, or degrade) on each of the aquatic habitat factors in the project areas, as described in the "Checklist for documenting environmental baseline and effects of the action" (Checklist) completed for the actions (ODOT 1997a). The results of the Checklist for these actions provide a basis for determining the overall effect on the environmental baseline in the project area.

The actions are expected to maintain most of the aquatic habitat factors within the affected river basins and watersheds. Some short-term increases in sediment reaching the water may occur due to in-water work, riprap placement, and replanting of native vegetation. Additional plantings and planting in the riprap would mitigate the loss of riparian vegetation as a result of the projects. The road density and drainage network, and floodplain connectivity factors should not be affected by any of the ongoing or proposed actions. The ongoing and proposed actions are expected to maintain all habitat indicators in the Necanicum, Nehalem, and Tillamook River basins (ODOT 1997a).

Potential adverse effects of the project and mitigating factors are discussed below.

1. No new footings would be placed in the stream channel. Construction areas would be revegetated using native species.

2. Increased sedimentation could result from (1) earth-moving activities, and (2) placement of temporary bridges during construction of the permanent bridges. This work would be done during the ODFW preferred in-water work window with erosion control measures designed to prevent sediment from entering waterways. Any sediment increase would be short term. All disturbed ground would be seeded and mulched or revegetated using native species including willow and red-osier dogwood sprigs.

3. Streambank stability would increase as a result of additional riparian plantings.

4. There would be no new cut and fill areas for any of the ongoing or proposed actions, reducing the potential for slides and erosion.

5. A spill of hazardous materials at fuel storage sites and staging areas or during transport of fuel oil or asphalt could occur. The ODOT has standard spill prevention, control, and response plans in place. Also, fuel storage sites would be bermed and located away from any waterway.

6. At no location (except at bridge or culvert crossings) would any road widening be closer than 20 feet from the waterway. New bridges would be built to current engineering standards.

7. The proposed retaining wall south of Avenue U (Pacific Way - Dooley Bridge) would be located away from the stream channel and designed to keep fill material from eroding into the Necanicum River.

B. Cumulative Effects. "Cumulative effects" are defined as those effects of "future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation" (50 CFR § 402.02).

The lower Necanicum River watershed runs through the town of Seaside and rural residential areas. The land use in the upper watershed is dominated by private timber operations, which is subject to the Oregon Forest Practices Act. Private interests in the Necanicum Basin include residential and commercial development, and forestry operations. A very small part of the upper watershed is part of the Clatsop State Forest.

Private interests in the Nehalem River Basin include residential and commercial development, forestry operations. A major portion of the watershed is within the Tillamook and Clatsop State Forests. The Nehalem River drainage has the greatest biological resource value for anadromous fish in the north coast area of Oregon (Nehlsen 1994).

The western half of the Tillamook Drainage Basin is in the Sitka spruce vegetation zone, while the eastern half is in the western hemlock zone. The lower 10 km (7 miles) of the Kilchis, Wilson, Trash, and Tillamook Rivers occupy a lowland that is nearly flat, while the upper regions in the Coast Range have higher gradients. The vast majority of the land in the Tillamook River Basin is managed by Oregon Department of Forestry. Forested portions of the lower watershed are owned by the Bureau of Land Management and private timber companies. Land use in the lower watershed is mainly dairy farming and other agricultural uses, and urban/commercial development.

Significant improvement in the reproductive success of OC coho salmon or OC steelhead is unlikely without changes in agricultural, forestry, and other practices affecting riparian areas. The NMFS is not aware of any future changes to existing State and private activities within the action area that would cause greater impacts to these species than presently occurs.

VI. Conclusion

The NMFS concurs with ODOT's determination that Barview - Miami River Bridge is "not likely to adversely affect OC coho salmon or OC steelhead. In addition, the Pacific Way - Dooley Bridge, Cow Creek Bridge, Wilson River - Dougherty Slough Bridge, and Beaver Creek Bridge, as described in the BA (ODOT 1997a), are not likely to jeopardize the continued existence of OC coho salmon or OC steelhead. The NMFS used the best available scientific and commercial data to apply its jeopardy analysis (Attachment 2) when analyzing the effects, including cumulative effects, of the proposed action on the biological requirements of the species relative to the environmental baseline.

In reaching this conclusion, the NMFS has determined that the likelihood of survival and recovery of OC coho salmon and OC steelhead can be increased by providing sufficient prespawning survival, egg-to-smolt survival, and upstream/downstream migration survival rates through the protection of and restoration to properly functioning freshwater habitat within the Necanicum, Nehalem, and Tillamook river basins.

The ODOT applied the NMFS' evaluation methodology (NMFS 1996) to the ongoing and proposed actions and found that they may cause minor, short-term degradation to some essential habitat elements. The action would improve other essential habitat elements, such as habitat access and long-term streambank stability.

Project design features (such as keeping footings away from stream channels, seeding and mulching, plantings, and erosion control measures) substantially diminish adverse effects to anadromous salmonids. Additionally, installing removable tidegates to improve migratory fish passage, and creating pools, would further mitigate adverse affects. These beneficial design features balance any short-term habitat degradation.

Because they are balanced by habitat improvements and beneficial design features, adverse habitat effects from the proposed actions would not reduce prespawning survival, egg-to-smolt survival, or upstream/downstream migration survival rates to a level that would appreciably diminish the likelihood of survival and recovery of OC coho salmon and OC steelhead.

VII. Conservation Recommendations

Section 7 (a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Conservation recommendations are discretionary measures suggested to minimize or avoid adverse effects of a proposed action on listed species, to minimize or avoid adverse modification of critical habitat, or to develop additional information.

The ODOT has taken substantial measures to minimize and mitigate the effects of the proposed project (see section II of this Opinion). The following conservation recommendation is designed to assist the ODOT in implementing these measures:

- Annual monitoring reports shall be submitted to NMFS on establishment of plantings.

VIII.Reinitiation of Conference

Reinitiation of this conference is required: (1) if any action is modified in a way that causes an effect on the species that was not previously considered in the BA and in this Opinion; (2) new information or project monitoring reveals effects of the action that may affect the species in a way not previously considered; or (3) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR § 402.16). For example, future watershed or basin analyses may indicate that the existing environmental baseline is substantially different than indicated by this analysis. Reinitiation of this conference would be required for ongoing or continuing activities for which the environmental baseline is substantially different than originally assessed.

Additionally, the NMFS would consider the projects to be significantly modified if any of the beneficial design features mentioned above fail to occur. Such modifications would alter overall project effects to coho salmon and steelhead, and reinitiation of this conference would be required.

IX. References

Section 7(a)(2) of the ESA requires biological and conference opinions to be based on "the best scientific and commercial data available." This section identifies the information used in developing this Opinion in addition to the BA and additional information requested by the NMFS and provided by the ODOT.

Busby, P.J., T.C. Wainwright, G.J. Bryant, L.J. Lierheimer, R.S. Waples, F.W. Waknitz, and I.V. Lagomarsino. 1996. Status review of west coast steelhead from Washington, Idaho, Oregon, and California. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-NWFSC-27. 261 pages.

National Marine Fisheries Service (NMFS). 1996. Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale. NMFS, Environmental and Technical Services Division, Habitat Conservation Branch, 525 NE Oregon Street, Portland, Oregon. 28 pages.

National Marine Fisheries Service (NMFS). 1997a. Attachment 1: Biological requirements and status under 1996 environmental baseline: Oregon Coast coho salmon and Oregon Coast steelhead. (Available from National Marine Fisheries Service, Environmental and Technical Services Division, 525 NE Oregon Street, Suite 500, Portland, Oregon 97232) May. 23 pages.

National Marine Fisheries Service (NMFS). 1997b. Attachment 2: Application of Endangered species Act standards to Oregon Coast coho salmon and Oregon Coast steelhead. (Available from National Marine Fisheries Service, Environmental and Technical Services Division, 525 NE Oregon Street, Suite 500, Portland, Oregon 97232) May. 9 pages.

Nehlsen, W. 1994. Prioritizing watersheds and wild salmon restoration: A summary of the framework developed under the sponsorship if Oregon Senate President Bill Bradbury. Draft. Pacific Rivers Council.

Oregon Department of Fish and Wildlife (ODFW). 1997. Oregon guidelines for timing of in-water work to protect fish and wildlife resources. Oregon Department of Fish and Wildlife. January.

Oregon Department of Transportation (ODOT) (prepared by ODOT and Beak Consultants Inc.). 1997a. North Coast Programmatic Biological Assessment for 1997; Effects on the Oregon Coastal Coho Salmon and West Coast Steelhead Trout. Salem, Oregon. 32 pages plus five appendices. April.

Oregon Department of Transportation (ODOT). 1997b. Addendum to the North Coast Programmatic Biological Assessment for 1997; Effects on the Oregon Coastal Coho Salmon and West Coast Steelhead Trout. Salem, Oregon. 2 pages. April 30.

Weitkamp, L.A., T.C. Wainwright, G.J. Bryant, G.B. Milner, D.J. Teel, R.G. Kope, and R.S. Waples. 1995. Status review of coho salmon from Washington, Oregon and California. NOAA Technical Memorandum NMFS-NWFSC-24, Northwest Fisheries Science Center, Seattle, Washington. 258 pages.